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STRIGULA KAITOKENSIS SP. NOV. FROM NEW ZEALAND

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Abstract - The foliicolous lichen **Strigula kaitokensis** Sérusiaux & Polly is described as new from New Zealand. It is characterized by its large and expanding involucrellum that causes secondary aggregation of individual perithecia. Mucoid appendages are present at both ends of ascospores.

A new foliicolous species of **Strigula** has been found in collections from New Zealand and is described in this paper.

Strigula kaitokensis Sérusiaux & Polly sp. nov.

Strigula species insignis expanso involucrello (et itaque aggregatis peritheciis) sporibusque appendicibus mucosis terminalibus praeditis.

Thallus subcuticular, usually half-circular as it grows on the margins of the leaves or scars, 0.5-1 cm in diam., exceptionally up to 2 cm in diam., with small, rounded lobes at the margins, bright green to greyish green, without bluish tinge, smooth and nitidous, without prothallus, 10-15 (-20) μm thick. Photobiont: a species of **Cephaleuros** (Trentepohliaceae), with rectangular or more or less rounded cells, 8-15 x 4-6 μm , yellowish green, arranged in radiating rows and forming a horizontal plate within the thallus.

Perithecia abundant, black, hemispherical to subconical, single or appearing to be fused because of a conspicuous, black, spreading involucrellum, that can gather up to 5-6 perithecia, but locules never fused and keeping their own apical ostiole; single perithecia 0.4-0.5 mm in diam., groups of aggregated perithecia up to 1.3 mm in diam.; involucrellum spreading between the upper surface of the host cells and the thallus, forming an irregularly delimited, subhorizontal, c. 0.3-0.4 mm wide plate around the perithecia and becoming rather thick (up to 150 μm) when developing between closely located ones; outer wall and involucrellum black in sections, heavily carbonized, outer wall usually absent under the center of the perithecial chamber; inner wall pale brown, less than c. 10 μm thick; perithecial chamber somewhat flattened, c. 240-250 x 140-160 μm ; paraphyses abundant, simple or rarely with a few branches, with several transverse septa, not inflated at apices; asci cylindrical, 85-90 x 8-9 μm , thin-layered except for the apex which is distinctly thickened and which contains a small ocular chamber; spores 8 per ascus, uniseriate, fusiform, with rounded ends, 1-septate, the distal cell slightly larger than the proximal one, slightly constricted at the septa, not breaking into pieces, with small, cap-like or infundibuliform, mucoid appendages at both ends, with several oil guttules in each cell in immature ones and with only one large guttule in mature ones, (12-)13-15 x 4.5-5.5 μm .

Pycnidia producing macroconidia like a flat cone, black and nitidous, 0.15-0.2 mm in diam.; conidiogenous cells lining the bottom of the pycnidial cavity, ampulliform, with a short, attenuated neck, c. 5 x 2 μm ; macroconidia numerous, subapically produced, narrowly ellipsoid to mostly bacilliform, or sometimes almost biclavate, slightly but distinctly narrower at the septa, with rather conical ends, 1-septate, with 1-2 oil guttules in each cell, 9.5-10.5 (-11) x 3-3.5 μm . Pycnidia producing microconidia punctiform, c. 40 μm in diam., black; conidiogenous cells not seen; microconidia bacilliform to slightly ellipsoid, 2-3 x 1 μm .

Type: New Zealand, North Island, Kaitoke Waterworks Reserve, N of Wellington, on *Beilschmiedia tawa* leaves in *Meliccytus ramiflorus*/*Dacrycarpus dacrydioides* forest, coll. B. Polly, 25 iii 1995 (WELT n° 4753-holotypus; CHR-, LG-isotypi; isotypi to be distributed in R. Lücking *Lichenes Foliicoli Exsiccati*).

Other specimen: New Zealand, North Island, Church Road Scenic Reserve, near Kaitaia, Mangonui Co., on leaves in old bush remnant, coll. J. K. Bartlett 18616 p.p., 8 iv 1982 (LG).

Characters of the asci, ascospores and macroconidia of this taxon immediately point to the genus *Strigula* Fr., one of the most commonly collected genera amongst the foliicolous lichens (Santesson 1952: 138-194). Harris (1975: 131-148) has convincingly demonstrated that several epiphytic or saxicolous species, previously referred to other genera (*Arthopyrenia* Massal., *Porina* Müll. Arg., etc.), also belong to that genus. This new species is easily distinguished from all other species described in the genus *Strigula* or referred to it by its large and expanding involucrellum that can join several perithecia.

A large, expanding involucrellum is known in several species of the closely related genus *Phylloporis* Clem.: *P. platypoda* (Müll. Arg.) Vezda, *P. multipuncta* (R. Sant.) Vezda and *P. viridis* Lücking (see Santesson 1952: 214-217 & Lücking 1991: 276-278 for descriptions of these species). These species are easily distinguished by their photobiont (*Phycopeltis*) and by their conical, acute perithecia that are very rarely aggregated.

The perithecia are always single in their early stages but they eventually become aggregated due to two phenomena:

- (i) they are often close to each other so that, as their involucrellum expands a great deal around them, they become secondarily aggregated in a "common" involucrellum shelf; these aggregates cannot be regarded as stroma or pseudostroma as the tissues involved in their formation are all of perithecial origin;
- (ii) around mature perithecia, secondary perithecial primordia develop under the lasting "shelf" formed by the involucrellum; in such situations, the perithecial chambers do not appear to fuse laterally and each of them develops its own apical ostiole.

To our knowledge, ascospores appendages were never reported in the genus. Roux & Sérusiaux (1995) have however observed mucoid appendages at both ends of ascospores in a specimen of **Raciborskiella janeirensis** (Müll. Arg.) R. Sant. (**Raciborskiella** Höhnelt is closely related to **Strigula**; Harris 1975: 131 has even reduced it into synonymy with **Strigula**). We cannot guarantee that those appendages are a good taxonomic character for **S. kaitokensis** as ascospores are usually observed in KOH solution, which destroys those mucoid structures. There is however no doubt that they do not occur in many species of the genus. When adequately preserved during the microscopic manipulation, the appendages of **S. kaitokensis** are present at both ends of the ascospores, they are cap- or funnel-shaped and they can be turned inside out like an umbrella.

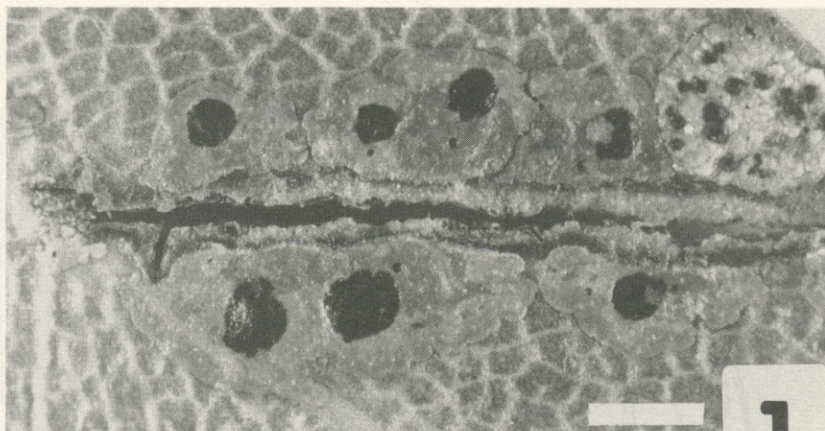
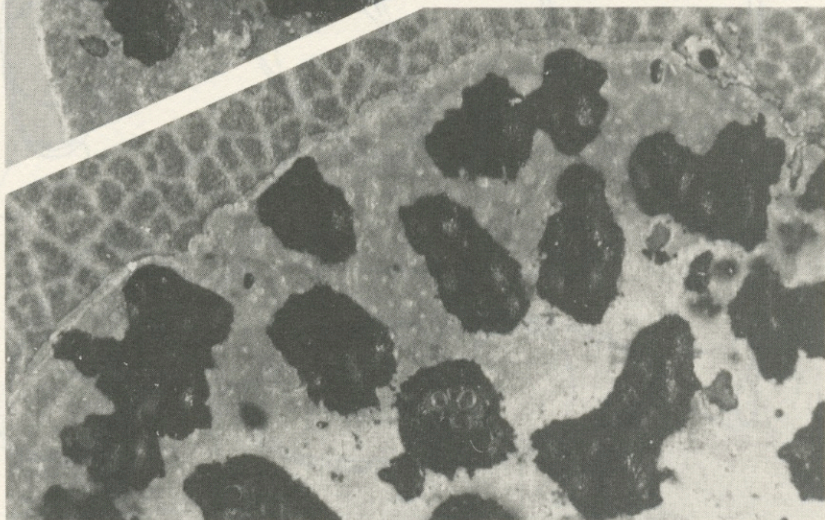
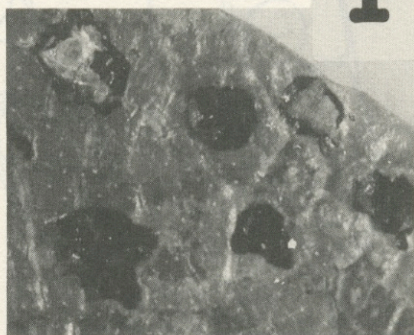
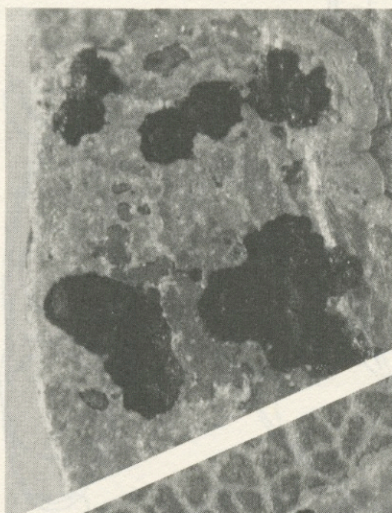
In all species of **Strigula**, the macroconidia are provided with mucoid appendages at both ends. Most foliicolous species produce very long ones as does **S. kaitokensis** (see Roux & Bricaud 1993: 124 for drawings of the foliicolous **S. nitidula** Mont. and **S. smaragdula** Fr.). These appendages were first described by Nag Raj (1981) who also thoroughly describes the conidia ontogeny.

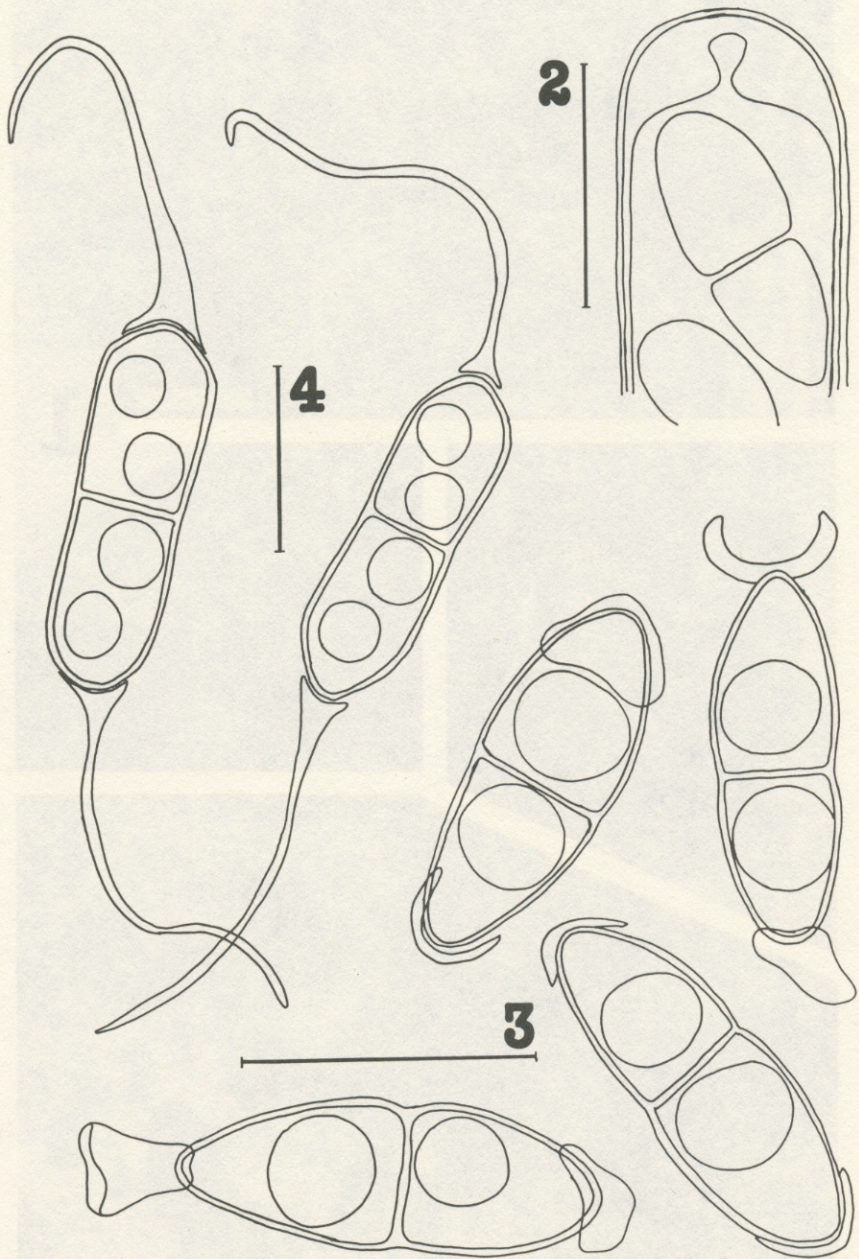
So far, **Strigula kaitokensis** is known from only two localities on the North Island in New Zealand. Although still little-studied, the genus is well represented in the foliicolous flora of that country: Galloway (1985: 563-565) reports the presence of the widespread **S. smaragdula** Fr. (= **S. elegans** (Fée) Müll. Arg.), **S. nitidula** Mont. and **S. subelegans** Vainio. At least two further, undescribed species occur in the collections left with one of us (E.S.) by the late J. K. Bartlett; they will be described in another paper.

Acknowledgements.-

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Strigula kaitokensis Sérusiaux & Polly (type-collection) 1.
General habit. Scale = 0.1 mm.

**1**



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Strigula kaitokensis Sérusiaux & Polly (type-collection) 2. Ascus apex. Scale = 10 μm . 3. Ascospores. Scale = 10 μm . 4. Macroconidia. Scale = 5 μm .